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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,439	02/20/2007	Pascale Colin	1022702-000159	2813
George F Lesmes Buchanan Ingersoll Burns Doane Swecker & Mathis P O Box 1404 Alexandria, VA 22313-1404				
EXAMINER				
LAO, MARIA LOUISA				
ART UNIT		PAPER NUMBER		
1621				
MAIL DATE		DELIVERY MODE		
07/28/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,439

Applicant(s)

COLIN, PASCALE

Examiner

LOUISA LAO

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20, 21, 23-26 and 31-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20, 21, 23-26 and 31-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/12/08 have been fully considered,, with respect to
 - a. the objection to claims 23 and 27 is rendered moot, in light of Applicants' cancellation of the claims 27 and 30.
 - b. the rejection(s) of claim(s) 20-21, 23-26, and 31-39 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Thus, the rejection is withdrawn.
 - c. the rejection(s) of claim(s) 20-39 under 35 U.S.C. 103(a) have been fully considered but are not persuasive. Therefore, the rejection has been maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 20-21, 23-26 and 31-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakanishi et al. (US5847181, US'181) in view of Halm et al. (US5059343, US'343).
3. The instant claims are drawn to a process for the preparation of alkylhalosilanes, comprising *inter alia* by reacting alkyl halide (CH₃Cl), with a solid body, formed by silicon and a catalytic system comprising: a copper catalyst and a group of promoter additives containing an additive (1) selected from metallic zinc, a zinc-based compound and the mixture thereof, an additive (2) selected from tin, a tin-based compound of the mixture thereof ; *optionally*, an additive (3) selected from cesium, potassium, rubidium, a compound derived from said metals and the mixture thereof; whereupon the copper catalyst is used in the form of a metallic copper, a copper halide or the mixture thereof, the solid body mass also contains a complementary promoter additive (4) wherein the additive includes *inter alia* alkali metal hypophosphite.
4. US'181 teaches an improvement over the direct process of preparing alkylhalosilanes from metallic silicon powder and alkyl halide in the presence of copper catalyst, by increasing the amount of dialkylsilane while minimizing the amount of disilanes by the addition of a phosphorus-containing compound to a contact mass comprising metallic silicon (column 1 line 1, abstract, column 2 lines 37-38 and lines 61-63). US'181 teaches that copper catalyst can be any form used, with accelerators including zinc and tin; where the copper catalyst is 0.1 to 10 parts per 100 parts by weight of the silicon powder and the accelerators, zinc at 0.05 to 1 part per 100 parts by weight of the silicon powder; while the tin at 0.001 to 0.05 part per 100 parts by weight of the silicon powder (column 3 lines 25-30). US'181 teaches that the phosphorus compound is blended in the contact mass, where the phosphorus include 1) metal phosphides; 2) metal

phosphates (such as tricalcium phosphate, calcium metaphosphate, calcium pyrophosphate in anhydrous salt form and salts thereof with 1A and 2A group metals such as sodium, potassium and magnesium and 1B and 2B group metals, such as copper and zinc (column 3 lines 31-41). US`181 teaches that metal phosphates are preferred since they are very stable compounds having a high melting point, maintaining a steady effect over a long period of time without being decomposed into elemental phosphorus (column 3 lines 48-52). US`181 teaches that the loading of phosphorus is 3,000 to 10,000 ppm calculates as phosphorus (claim 1 column 6, column 3 line 62). US`181 teaches that exemplary alkyl halides include *inter alia*, methyl chloride (column 4 line 5). US`181 teaches in working examples the different phosphorus-containing compounds, as shown in Table 1 column 5, where the reaction temperature can be increased to 290°C and at atmospheric pressure, (the pressure as inferred from the description of products having a boiling point of higher than 70°C under atmospheric pressure).

5. The instant claims differ from US`181 in that the instant claims (a) recite *optionally* the additives chosen from cesium, potassium, rubidium, a compound derived from said metals and the mixture thereof and quantities thereto; b) the recitation that tin is introduced in the form of bronze and c) recitation that the additive (4) is *inter alia* hypophosphites.

6. The difference a) is not patentable, in light of the teachings of prior art. One of ordinary skill in the art at the time of Applicants' invention would have found it obvious to use additives, as found efficacious in his art, to enhance his reaction.

7. An artisan of ordinary skill would have been motivated to use additives in US`181 since it has been taught in US`343 (column 2 lines 28-44) that collectively the prior art teaches that combinations of silicon-copper alloys and *certain other materials* can be used to affect the

Art Unit: 1621

reactivity or selectivity of the direct process of preparing alkylhalosilanes, where additionally, levels of *certain phosphorus compounds*, as an additive, contribute to the enhanced reactivity and selectivity in the direct process of preparing alkylhalosilanes (column 2 lines 43-45); and the artisan would reach a reasonable expectation of preparing other alkylhalosilanes using said combinations.

As to the recitation of quantities, these limitations are not unobvious either. One of ordinary skill would find it obvious to optimize the quantities of his reactants, absent a showing of criticality and/or unexpected results, as part of normal experimentation. It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to engage in routine experimentation to determine the optimal or workable ranges that produce unexpected results. *In re Aller*, 220 F. 2d 454, 105 USPQ 233 (CCPA 1955).

8. The difference b) that tin is introduced as bronze is not unobvious. An artisan of ordinary skill at the time of Applicants' invention would have found it obvious to use alternate and/or available forms of his material.

9. The artisan would be motivated to use alternate forms of his material, like tin in the form of bronze, to reap the benefit of having the presence of copper in bronze, which is a copper alloy to augment the activity of the copper catalyst for the reaction, and reach a reasonable expectation that the alternative form of tin will work in his reaction.

10. The remaining difference, the recitation hypophosphites and the state in which it naturally occurs is not patentable. The claim would have been obvious because the substitution of one known element for another, in this case, hypophosphites in lieu of phosphates, would have yielded predictable results to one of ordinary skill in the art at the time of the invention – since

the use of hypophosphites is suggested by US'181, since US'181 generally teach the use of *any phosphorous compound in column 3, lines 31 and 32*. The claim would have been obvious because "a person of ordinary skill has a good reason to pursue the known options within his or her technical grasp, *such as the use of alternate forms of his material*". If this leads to the anticipated success, it is likely the product, not of innovation, but of ordinary skill and common sense. The Supreme Court in *KSR* noted that if the actual application of the technique would have been beyond the skill of one of ordinary skill in the art, then the resulting invention would not have been obvious because one of ordinary skill could not have been expected to achieve it.

11. No claims are allowed.

- Applicants argue a) that "US'343 does not disclose or suggest modifying the processes of US'181 to specifically include a supplementary promoting additive β 4 which is *inter alia* an alkali metal hypophosphite"; b) that the "cited prior art references fail to proper consideration of "all words" in Claim 20".

However, Applicants may have misconstrued the reliance on US'343. US'343 is relied upon to teach the generally-art-known concept of additives, and reiterate " US'343 (column 2 lines 28-44) that collectively the prior art teaches that combinations of silicon-copper alloys and *certain other materials* can be used to affect the reactivity or selectivity of the direct process of preparing alkylhalosilanes, where additionally, levels of *certain phosphorus compounds*, as an additive, contribute to the enhanced reactivity and selectivity in the direct process of preparing alkylhalosilanes (column 2 lines 43-45".

Further, Applicants allegation "that "all words" of the claims have not been considered in evaluating the patentability of the instant claims" is interpreted to mean that Applicants want a

Art Unit: 1621

verbatim comparison of the instant hypophosphites with prior art. However, the cited prior art, albeit is silent in the nomenclature that Applicants may be referring to, discloses clearly alternate materials and to reiterate "US'181 generally teach the use of *any phosphorous compound in column 3, lines 31 and 32*". Applicants' arguments are unpersuasive.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louisa Lao whose telephone number is (571)272-9930. The examiner can normally be reached from 8:00am to 8:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

0720-07224008 ml
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